UNITED STATES PATENT AND TRADEMARK OFFICE

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/796,017 | 03/10/2004 | Keijiro Take | 249320US-6 DIV | 2657 |

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| EXAMINER |
|---|
| PHAN, TRI H |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2661 | |

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

| | **Application No.** | **Applicant(s)** |
|---|---|---|
| **Office Action Summary** | 10/796,017 | TAKE, KEIJIRO |
| | **Examiner** | **Art Unit** | |
| | Tri H. Phan | 2661 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on <u>31 August 2004</u>.

2a)☐ This action is **FINAL.**     2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) <u>3-6</u> is/are pending in the application.

    4a) Of the above claim(s) <u>1 and 2</u> is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>3-6</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All  b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☒ Certified copies of the priority documents have been received in Application No. <u>09/156,703 (US 6,477,158)</u>.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>1-3</u>.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

# DETAILED ACTION

## *Response to Amendment/Arguments*

1.      This Office Action is in response to the Preliminary Amendment filed on August 31$^{st}$,

2004. Claims 1-2 are now canceled and new claims 3-6 are added. Claims 3-6 are now pending

in the application.

## *Priority*

2.      Acknowledgment is made of applicant's claim for foreign priority under 35

U.S.C. 119(a)-(d).  The certified copy has been filed in parent Application No. 09/156,703 filed

on 09/18/1998.

## *Claim Rejections - 35 USC § 103*

3.      The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains.  Patentability shall not be negatived by the
> manner in which the invention was made.

4.      Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nakamura et**

**al.** (U.S.5,740,168) in view of **Adachi** (U.S.6,084,884).

- In regard to claims 3 and 5, **Nakamura** discloses in Figs. 3A-B, 2A-B, 4, 20A-B, 25

and in the respective portions of the specification about the method and apparatus for switching

radio link at the base station in the mobile communication employing code division multiple

access 'CDMA' for radio access with the mobile stations (For example see Abstract; col. 5, lines

10-30); wherein each base station's transceiver unit (*"base station"*; For example see Fig. 2A)

under the control of the base station control unit includes the switching timing set up unit, the

switching timing information changing unit (*"timing information sending unit"*), the spread code

switching unit and the control unit (*"switching unit"*) as disclosed in Fig. 2B; for selecting and

transmitting the timing information (*"timing information"*) and new spreading code (*"code*

*information"*; wherein, it is obvious that the new spreading code is the *"second code"* and the

being used spreading code is the *"first code"*) to the mobile station for switching the spreading

codes in synch (*"switching in synchronization"*) between the base station and the mobile station,

when detecting the link quality degradation, (For example see Figs. 4, 20A-B, 25; col. 6, line 18

through col. 7, line 38); and wherein the transceiver unit of the mobile station (*"mobile station"*)

includes the switching timing set up unit, the switching timing information change detection unit,

the spread code switching unit and the control unit as disclosed in Fig. 3B, for receiving the new

spreading code designation signal (*"code information"*) containing the selected unused spreading

code (For example see Figs. 4, 20A-B, 25; col. 6, lines 35-39; where, it is obvious that the newly

selected unused spreading code is the *"second code"* and the 'being used' spreading code is the

*"first code"*) sent by the base station (For example see col. 6, lines 18-34); for receiving the

switching timing information sent by the base station (*"timing information"*; For example see

Figs. 4, 20A-B, 25; col. 6, line 60 through col. 7, line 3); and for switching to the newly selected

spreading code (*"second code"*) at appropriate timing (For example see Figs. 4, 20A-B, 25; col.

7, lines 4-15) for maintaining in synch between the base station and the mobile station

(*"switching performed in synchronization"*; For example see col. 7, lines 28-38). **Nakamura**

further discloses about the use of unique words in each frame for setting up the switching timing

in prescribed frames, e.g. M and N frames (For example see Figs. 4, 6-7; col. 8, line 64 through

col. 9, line 12), or using frame number (For example see Fig. 16; col. 14, lines 7-17), or using

flag in each frame for period of time in boundary of frames (For example see Figs. 8-15; col. 11,

lines 50-59); wherein, it is obvious the number or sequence of frames is in integer (*"timing*

*information including an integer representing the frame"*). **Nakamura** does disclose about the

method and system for using in the CDMA scheme, but fails to explicitly disclose about the

*"multi-rate transmission"* of the CDMA. However, such implementation is known in the art.

For example, **Adachi** discloses in Figs. 1, 3, 7, 9-11 and in the respective portions of the

specification about the system and method for achieving generation and selection of spreading

sequences implementing in the multi-rate CDMA communications system (*"multi-rate*

*transmission"*; For example see Figs. 1, 3, 7; col. 3, line 39 through col. 4, line 27; col. 5, lines

26-67) while assuring code orthogonal without interference between the users, which results in

the degradation in the transmission quality.

Thus it would have been obvious to the person of ordinary skill in the art at the time of

the invention was made to combine the invention as taught by **Adachi**, by implement the method

for using and selecting spreading sequences in the multi-rate CDMA communications system

into the **Nakamura**'s CDMA scheme, with the motivation being to improve the ability to carry

out the transmission with different rates for different types, without interference between users as disclosed in **Adachi**: col. 1, lines 45-48.

- Regarding claims 4 and 6, **Nakamura** discloses in Figs. 3A-B, 2A-B, 4, 20A-B, 25 and in the respective portions of the specification about the method and apparatus for switching radio link at the base station in the mobile communication employing code division multiple access 'CDMA' for radio access with the mobile stations (For example see Abstract; col. 5, lines 10-30); wherein each base station's transceiver unit (*"base station"*; For example see Fig. 2A) under the control of the base station control unit includes the switching timing set up unit, the switching timing information changing unit (*"timing information sending unit"*), the spread code switching unit and the control unit (*"switching unit"*) as disclosed in Fig. 2B; for selecting and transmitting the timing information (*"timing information"*) and new spreading code (*"code information"*; wherein, it is obvious that the new spreading code is the *"second code"* and the being used spreading code is the *"first code"*) to the mobile station for switching the spreading codes in synch (*"switching in synchronization"*) between the base station and the mobile station, when detecting the link quality degradation, (For example see Figs. 4, 20A-B, 25; col. 6, line 18 through col. 7, line 38); and wherein the transceiver unit of the mobile station (*"mobile station"*) includes the switching timing set up unit, the switching timing information change detection unit, the spread code switching unit and the control unit as disclosed in Fig. 3B, for receiving the new spreading code designation signal (*"code information"*) containing the selected unused spreading code (For example see Figs. 4, 20A-B, 25; col. 6, lines 35-39; where, it is obvious that the selected unused spreading code is the *"second code"* and the 'being used' spreading code is the

"*first code*") sent by the base station (For example see col. 6, lines 18-34); for receiving the

switching timing information sent by the base station ("*timing information*"; For example see

Figs. 4, 20A-B, 25; col. 6, line 60 through col. 7, line 3); and for switching to the newly selected

spreading code ("*second code*") at appropriate timing (For example see Figs. 4, 20A-B, 25; col.

7, lines 4-15) for maintaining in synch between the base station and the mobile station

("*switching performed in synchronization*"; For example see col. 7, lines 28-38). **Nakamura**

further discloses about the use of unique words in each frame for setting up the switching timing

("*timing of switching*") in prescribed frames, e.g. M and N frames (For example see Figs. 4, 6-7;

col. 8, line 64 through col. 9, line 12) and maintaining the frame synchronization ("*timing

information is used to synchronize the switch*"; For example see col. 8, lines 19-22), or using

frame number (For example see Fig. 16; col. 14, lines 7-17), or using flag in each frame for

period of time in boundary of frames (For example see Figs. 8-15; col. 11, lines 50-59).

**Nakamura** does disclose about the method and system for using in the CDMA scheme, but fails

to explicitly disclose about the "*multi-rate transmission*" of the CDMA. However, such

implementation is known in the art.

For example, **Adachi** discloses in Figs. 1, 3, 7, 9-11 and in the respective portions of the

specification about the system and method for achieving generation and selection of spreading

sequences implementing in the multi-rate CDMA communications system ("*multi-rate

transmission*"; For example see Figs. 1, 3, 7; col. 3, line 39 through col. 4, line 27; col. 5, lines

26-67) while assuring code orthogonal without interference resulting in the degradation in the

transmission quality between the users.

Thus it would have been obvious to the person of ordinary skill in the art at the time of

the invention was made to combine the invention as taught by **Adachi**, by implement the method

for using and selecting spreading sequences in the multi-rate CDMA communications system

into the **Nakamura**'s CDMA scheme, with the motivation being to improve the ability to carry

out the different rate transmissions for different types, without interference between users as

disclosed in **Adachi**: col. 1, lines 45-48.


## *Conclusion*

5.      The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

**Harris et al.** (U.S.6,400,755), **Blanchard et al.** (U.S.5,862,132), **Light et al.**

(U.S.6,061,337), **Uchida et al.** (U.S.6,532,168), **Katsura et al.** (JP 9-261162), **Tanno et al.**

(U.S.6,078,572), **Adachi et al.** (Wideband Multi-rate DS-CDMA Mobile Radio Access,

December 1997, Asia Pacific Microwave Conference, APMC '97, Vol. 1, 2-5, pages 149-152)

and **Okawa et al.** (Orthogonal Multi-Spreading Factor Forward Link for Coherent DS-CDMA

Mobile Radio, October 1997, Universal Personal Communication Record, '97 Conference, 0-

7803-3777-8/97 IEEE, Vol. 2, pages 618-622) are all cited to show devices and methods for

improving transmission in the CDMA communication architectures, which are considered

pertinent to the claimed invention.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Tri H. Phan, whose telephone number is (571) 272-3074. The

examiner can normally be reached on M-F (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078.

**Any response to this action should be mailed to:**

## Commissioner of Patents and Trademarks
Washington, D.C. 20231

**or faxed to:**

**(703) 872-9314**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,

Arlington, VA, Sixth Floor.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the Technology Center 2600 Customer Service Office, whose telephone

number is (703) 305-3900.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).
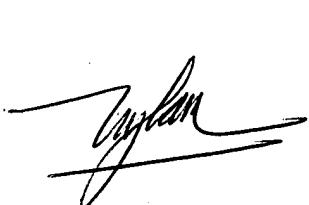
BRIAN NGUYEN
PRIMARY EXAMINER

Tri H. Phan
December 8, 2004